

REMARKS

Claim 22 has been amended to correct an informality. No new matter has been added. Claims 3, 5-8, 11, 14-17, and 22-31 are currently pending. Reexamination and reconsideration of the application are respectfully requested.

Paragraph 2 on page 2 of the Action states that claim 31 is directed to a non-elected invention. Claim 31 is directed to method for reading out values of an array of photocells that are arranged in rows and columns by using the novel invention as claimed. Specifically, the claim recites the steps of sampling the light signal; holding the light signal; after the photocells of the first row have been reset, sampling the reset signals of photocells of the first row by using the sampling circuit; determining a difference between the light signal and the reset signal of a first photocell in the first row by utilizing a charge conversion circuit that is coupled to the sampling circuit; and sequentially reading out the values of the array of photocells. Accordingly, it is respectfully requested that the election/restriction requirement be re-considered, that method claim 31 be considered as dependent on the invention as originally claimed, and that method claim 31 be grouped with the remaining claims for prosecution.

Paragraph 3 on page 3 of the Action objects to claim 22 and notes an informality in the last section of claim 22. In response, claim 22 has been amended to correct the informality.

REJECTION OF CLAIMS 3, 5, 11, 14, and 22-30 UNDER 35 U.S.C. 102

Claims 3, 5, 11, 14, and 22-30 are rejected under 35 U.S.C. 102(e) for the reasons set forth on pages 3-4 of the Action. Specifically, claims 3, 5, 11, 14, and 22-30

are rejected under 35 U.S.C. 102(e) as being anticipated by Yonemoto et al. (US Pat. No. 6,166,769), which is hereinafter referred to as "Yonemoto" or as "the Yonemoto reference."

The rejections under 35 U.S.C. 102(e) are respectfully traversed, and reconsideration and reexamination of the application is respectfully requested for the reasons set forth herein below.

The Federal Circuit has ruled, "Under 35 U.S.C. §102, anticipation requires that each and every element of the claimed invention be disclosed in the prior art. . . . In addition, the prior art reference must be enabling, thus placing the allegedly disclosed matter in the possession of the public." Akzo N.V. v. United States Int'l Trade Comm'n, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986), cert. denied, 482 U.S. 909 (1987). [emphasis added.]

Furthermore, the Federal Circuit has held, "Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." W.L. Gore & Assocs. v. Garlock, Inc., 220 USPQ 303, 313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). [emphasis added.]

Pages 3 to 4 of the Action identify those elements of the Yonemoto reference that describe or otherwise anticipate the elements as claimed. Specifically, the Office Action asserts that components 32, 38, 38', 39, 43, 44, and 47 of FIG. 4 of the Yonemoto reference teach the invention as claimed.

It is respectfully submitted that the Yonemoto reference fails to teach or suggest each and every element of the system as claimed. Claims 22 and 23 recited that the sampling circuit for each column samples the light signal and the reset signal.

For example, regarding amended independent claim 22, the Yonemoto reference fails to teach or suggest inter alia the following claim limitations: "wherein the first sampling circuit samples a light signal and a reset signal from each photocell in the first column," and "wherein the second sampling circuit samples a light signal and a reset signal from each photocell in the second column."

Regarding amended independent claim 23, the Yonemoto reference fails to teach or suggest inter alia the following claim limitations: "wherein the first sampling circuit samples a light signal and a reset signal from each photocell in the first column," and "wherein the second sampling circuit samples a light signal and a reset signal from each photocell in the second column."

It is respectfully submitted that elements 38 and 38' of Yonemoto do not fairly teach or suggest the first sampling circuit as claimed. Yonemoto describes a first signal holding circuit 51 (that includes the first load capacitance elements 38) as "holding signals of the pixel MOS transistors before the pixels are reset." Moreover, Yonemoto describes the second signal holding circuit 52 (that includes the second load capacitance elements 38') as "holding signals of the pixel MOS transistors after the pixels are reset." Consequently, capacitor 83 does not fairly teach or suggest the first sampling circuit as claimed because the capacitor 83 only samples the signal level before pixel reset. Stated differently, capacitor 83 of Yonemoto does not sample the signal value after pixel reset as claimed.

Similarly, capacitor 83' does not fairly teach or suggest the first sampling circuit as claimed because the capacitor 83' only samples the signal level after pixel reset. Stated differently, capacitor 83' of Yonemoto does not sample the signal value before pixel reset.

In other words, Yonemoto utilizes a first capacitor 38 for sampling the signal value before pixel reset and a second, separate capacitor 38' for sampling the signal value after pixel reset. Moreover, Yonemoto clearly indicates that multiple sample and hold circuits (a first signal holding circuit 51 and a second signal holding circuit 52) are utilized in its apparatus. In sharp contrast, the sampling circuit for each column as claimed samples both a light signal and a reset signal from a photocell.

Furthermore, it is respectfully submitted that elements 39 and 39' of Yonemoto do not fairly teach or suggest at least the following limitation: "an amplifier that includes a negative input terminal coupled to the second electrode of the first switch and second electrode of the second switch," as claimed. For example, element 39 is coupled to the inverting terminal of a top operational amplifier 43, but element 39' is coupled to the inverting terminal of a bottom operation amplifier 43', which is different from top operational amplifier 43. Furthermore, capacitor 38' is not coupled to the inverting input of the top operational amplifier 43.

The following excerpt from the description of FIG. 4 of Yonemoto supports the previously presented interpretation of Yonemoto:

The first operation switches 37, the first load capacitance elements 38, and the first horizontal switches 39 jointly make up a first signal holding circuit 51 for holding signals of the pixel MOS transistors before the pixels are reset. The second operation switches 37', the second load capacitance elements 38', and the second horizontal switches 39' jointly make up a second signal holding circuit 52 for holding signals of the pixel MOS transistors after the pixels are reset.

The dependent claims incorporate all the limitations of independent claims 22 and 23, respectively. In this regard, the dependent claims also add additional limitations, thereby making the dependent claims a fortiori and independently patentable over the cited reference.

A new method claim 31 has been added to claim the novel processing aspects according to the invention. In particular, limitations directed to using a sampling circuit to sample a light signal from a particular column and then using the same sampling circuit to sample a reset signal from that column are recited. Regarding new method claim 31, the Yonemoto reference fails to teach or suggest inter alia the following claim limitation: "sampling the light signal of all the photocells in a first row by utilizing a sampling circuit that corresponds to a particular column of the array; .. after the photocells of the first row have been reset, sampling the reset signals of photocells of the first row by using the sampling circuit."

In view of the foregoing, it is respectfully submitted that Yonemoto reference, whether alone or in combination, fails to teach or suggest the sequential readout circuit and system as claimed.

REJECTION OF CLAIMS 6, 7, 15 and 16 UNDER 35 U.S.C. 103(a)

Claims 6, 7, 15, and 16 are rejected under 35 U.S.C. 103 for the reasons set forth on pages 4 and 5 of the Action. Specifically, claims 6, 7, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemoto et al. (U.S. Pat. No. 6,166,769) in view of Simerly et al. (U.S. Pat. No. 5,982,424), which is hereinafter referred to as "Simerly et al." or as "the Simerly reference."

The Action states that Yonemoto does not disclose level shifting circuit or gain manipulation circuit as claimed. However, the Action cites Simerly et al. (col. 7, lines 35-47) for teaching "level shifting and gain manipulation in a similar system." The Action further states "it would have been obvious to a person of ordinary skill in the art

at the time of the invention was made to provide such a configuration in the apparatus of Yonemoto to improve detection.”

The rejections under 35 U.S.C. 103 are respectfully traversed, and reconsideration and reexamination of the application are respectfully requested for the reasons set forth hereinbelow.

The combination of the readout circuit of Yonemoto with “level shifting and gain manipulation,” purportedly taught by Simerly et al., is contested as improper for the reasons advanced in responses to previous Actions. However, even if this combination were proper, which is not conceded, the resulting combination would still fail to teach or suggest the claimed invention.

It is respectfully submitted that the combination of Yonemoto and Simerly fails to teach or suggest the invention as claimed for the same reasons as advanced previously. Simerly does not cure the deficiencies of Yonemoto. Specifically, it is noted that the Krymski reference, whether alone or in combination with Simerly et al., fails to teach or suggest inter alia the following claim limitations: “wherein the first sampling circuit samples a light signal and a reset signal from each photocell in the first column,” and “wherein the second sampling circuit samples a light signal and a reset signal from each photocell in the second column,” as recited in amended claims 22 and 23.

It appears that the current patent application has been improperly used as a basis for the motivation to combine or modify the components selected from the Yonemoto and the Simerly references to arrive at the claimed invention. Stated differently, the proposed combination of the cited references appear to be based on hindsight since the

cited references do not teach or suggest a motivation to combine the respective elements of each reference in the manner proposed by the Action. Accordingly, it is respectfully requested that the rejection of claims 6, 7, 15 and 16 under 35 U.S.C. 103(a) be withdrawn.

Conclusion

For all the reasons advanced above, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the pending claims are requested, and allowance is earnestly solicited at an early date. The Examiner is invited to telephone the undersigned if the Examiner has any suggestions, thoughts or comments, which might expedite the prosecution of this case.

Respectfully submitted,



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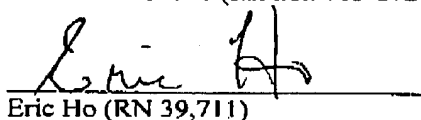
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I hereby certify that this paper is being facsimile transmitted to the U.S. Patent and Trademark Office (fax no.: 703-872-9306) on the date below.


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(Date)